

UNITED STATES
DEPARTMENT OF AGRICULTURE
LIBRARY



BOOK NUMBER 1.9510
L22
Reserve
468156

GPO 8-7671

Bozeman, Montana
June 5, 1939

R10-Mt-D8

Mr. Thomas Horsford
State Director
Farm Security Administration
U. S. Department of Agriculture
Bozeman, Montana

Dear Mr. Horsford:

Submitted herewith is (a narrative report which is the result of a survey of conditions among stump land settlers in Flathead County, Montana.) As suggested by you and Assistant Regional Director, W. L. Elser, I have tried only to present a pattern picture of the situation.

At the suggestion of the Regional Director, I have included also a summary of conclusions and recommendations made with some disregard of existing regulations and policies in Montana.

The writer would like to acknowledge with thanks the kind help given by Rhoda Prough, Clerk in our office at Kalispell, who has had almost a life long acquaintance with the lands in question; also to Stanley Halverson, County Agent; John Wheeler, County Supervisor; and to Lawrence Larson at Bozeman, for placing at our disposal the facilities of his County Supervisor office, to the hindrance of his own work.

I should also like to thank you, Mr. Horsford, for giving me opportunity to do this work by relieving me, so far as you could, from other duties, and for your always kind patience and tolerance for the idiosyncrasies of a sometimes unpleasant nature.

Sincerely yours

Dorr Skeels
District Supervisor

TABLE OF CONTENTS

THE LAND	Page
Location of Stump Lands	1
Soil Sources	3
Soil as Affected by Forest Cover	6
Kinds of Soil	10
Forest Soil and Climatic Effects	14
Lack of Irrigation	14
THE PEOPLE	
Migrants	15
Origin and Occupations	16
Old Settler Stump Land Farmers	16
Location of Migrants by Classes	18
Maladjustment of Families to the Land	19
Industries, Sources of Employment and Income	22
Story of a Refugee Family	26
Methods and Costs of Land Clearing	28
Social Factors and Trends	30
Typical Old Time Stump Land Farmer	31
ECONOMIC FACTORS	
Crop Production and Climatic Influences, Markets	32
Industrial Centers	37
Public Services and Utilities	38
Population Trends	39
Attitude of Land Selling Agencies	39
Farm Plans for Small Farms	40
On a small Subsistence Tract	41
PROBLEM SUMMARY AND CONCLUSIONS	
Grants for Powder	42
Where Loans Might Be Made	43
APPENDIX	
Letters from Settlers	A
Compilation of Questionnaire Replies	B
Sample Questionnaire	C
Chamber of Commerce Publications	D
Forest Service (topographical) Map	E

THE LAND

Location of Stump Lands

Flathead Valley which includes the most productive agricultural lands of western Montana extends generally some 100 miles from north to south and is naturally divided into three unequal parts. The lower Flathead Valley is that part south of Flathead Lake and extending south from Polson where the Flathead River flows out of Flathead Lake to the valleys of the Jocko River and the Clarks Fork River on the Northern Pacific Railroad.

The middle and narrower part of Flathead Valley is occupied by Flathead Lake, nearly thirty miles in length. We are mostly concerned with upper Flathead Valley which extends north from the upper end of Flathead Lake to the mainline of the Great Northern Railroad and National Highway No. two between Columbia Falls and Whitefish, and for a few miles west of Whitefish.

Most of the stump lands considered in this report are to be found in the northern part of this upper valley and particularly on the outskirts of the northern, northwestern and eastern margins of this valley which may be described as a roughly square, irregular rectangle with Kalispell in about the middle of its lower and southern side, with Columbia Falls at its upper northeast corner, Whitefish near its upper northwest corner, but extending a few miles west of Whitefish to include some of the valley of the Stillwater River. This upper part (north of Kalispell) of the Flathead Valley is bounded quite definitely on the east side by the Kalispell mountain range which rises abruptly and steeply from the valley floor. It is bounded on the north more irregularly by the more broken ranges of the Whitefish Mountains and on the west in an even less definite and more broken manner by the foothills of the Wolf Mountain Range.

The Great Northern Railroad comes into the valley from the east at Columbia Falls through Bad Rock Canyon, coming down the middle fork and finally the main stream of the Flathead River which is the principal tributary of the valley. The railroad leaves the valley at the northwest corner, northwesterly up the Stillwater River. Near the little towns of Coram and Belton on the middle fork of the upper Flathead River is a considerable valley containing a large number of

A. Photographs -

Upper picture - two or three miles east of Whitefish looking north towards Whitefish range.

Second from top - looking east from near Whitefish towards Columbia Falls. Mountains in right and middle background are Kalispell range. Gap to the left is Bad Rock Canyon. Mountain in far left background is Tea Kettle Mountain. This shows quite well the north end of the interior valley bordered on all sides by stump lands.

Second from bottom - about tow miles southeast of Whitefish looking east towards Whitefish range.

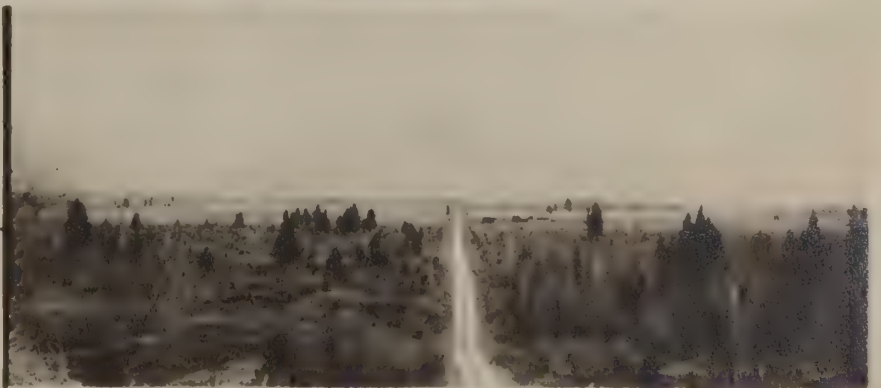
Bottom - this shows the bottom of an extinct glacial pond, a little pool of water still remains at extreme left and only the bottom land shown in picture is suitable for agriculture.

stump land settlers just outside of Flathead Valley. Again over at the northeast corner of the valley and extending northwesterly up the Stillwater River is a large valley containing a considerable number of stump land settlers; and



again at the foot of the steep slope of the Kalispell range southeast of Kalispell where the Big Fork River comes into Flathead Lake is a large valley somewhat detached from the main valley in the vicinity of Echo Lake and containing a large community of stump land settlers.

We thus deal mostly with the margins of the nearly square northern part of the Flathead Valley some twelve to fourteen miles across in each direction, the long tributary upper Flathead



River Valley coming in from the northeast, the long tributary Stillwater Valley coming in from the northwest and the somewhat detached valley at Echo Lake.

The stump landers are mostly settled in the neighborhood of Whitefish and for a few miles east, west and south of there and again in the neighborhood of Columbia Falls and down along the foot of the Kalispell Mountain Range past Lake Blaine and Echo Lake and as far as Swan Lake. The settlements are found for miles back into the mountains in the tributary valleys of the Flathead, the



Stillwater, Swan River, Whitefish River, the Marian-Kila locality west of Kalispell and in many other smaller valleys back in the mountains. They are everywhere where there are stump land valleys. The maps in the appendix of this report will give the reader a better idea of the general location of the settlers.

The more middle parts of this northern part of the upper Flathead Valley were at the beginning of the agricultural settlement open prairie and wild meadows, broken with small groves of woods (a park-like country). Forest cover completely encircles the valley except on the south and thus the stump land settlers are found around the margins of the valley and up the tributary valleys.

Soil Sources

In order to understand the soil conditions of the stump lands it is necessary to consider briefly and in only a very general way the geological history of the upper valley and the sources of its soil materials.

A long time ago the place now occupied by Glacier Park, just to the north and east of the valley and by other mountain ranges bounding the several sides of the valley, was covered with water. On the floor or bed of this sea sedimentary rocks were formed. Then in an age of earthquakes and volcanic disturbances there were great upheavals forcing much older, harder rocks up through the sedimentary rocks to heights of many thousands of feet above the floor of the ancient sea.

The eastern side of this upthrust is found along the foot of the front range of the Rocky Mountains where the Eastern Great Plains join quite abruptly to the foot of the mountains and is known as the Lewis Fault.

The western side of this upthrust is not so well defined since the upthrusts continued with less degree to a considerable distance to the west having to do with the formation of such ranges as the Wolf Mountain Range, Cabinet Mountain Range and the Coeur d'Alene Mountains. However, as this great upheaval pushed the oldest rocks of the earth's shell up through the sedimentary rocks of the sea floor, a gigantic fault was developed along the west side of the Rockies which is one of the most pronounced and best known to geologists. This is known as the Rocky

Mountain Trench and extends generally in a rather straight line for 800 miles from Laird River in the Northwest Territory of Canada parallel with the western slope of the main range of the Rocky Mountains to Flathead Lake. South and east from Flathead Lake geologists differ as to which of the large valleys continue this trench. The best accepted theory seems to be that it continues through Swan River, Swan Lake, Upper Swan River and through the valleys of the Big Blackfoot to the Little Blackfoot River in the vicinity of Elliston which lies west across the Rocky Mountains from Helena and has nothing to do with the area under consideration. All of the lands that we have to consider are in the valleys of the Rocky Mountain Trench except those found in the Basin of the Upper Flathead River west of Columbia Falls in the vicinity of the little towns of Coram and Belton.

The north fork of the Flathead River and its ancient valleys are important as soil sources. The north fork enters Flathead County from Canada and flows almost straight south into the main Flathead River, just a little below the confluence of the south fork. It runs along the foot of the immediate west slope of the main crest of the Rocky Mountains which is also the western boundary of Glacier National Park and its valley marks the location of another distinct fault that had to do with the upthrust of the main range itself and is important as a soils source. The north fork was once a much more important tributary and came into the valley in front of Tea Kettle mountain. It was blocked by glacial debris and now joins the middle fork from behind, or east of, Tea Kettle mountain. Oil and coal fields are being developed in its valley, in Canada just across the border.

As a consequence of the upthrust of the main range of the Rocky Mountains and very old Algonkian rocks are found in the highest mountain tops in Glacier Park and along the crest of the main range of the Rockies south of the Park. Almost all of the structural formations of the ranges bordering the upper Flathead Valley on its several sides are sedimentary rocks of the Algonkians. The rock formations bordering the large rounded glacial valley of the Stillwater River are impure limestone, red and green argillites, argillitic limestone, calcareous argillite, impure dolomitic and sideritic limestone. Some quartzite and sandstones are found in the lower slopes of the mountains forming the valleys of the North Fork of the Flathead and of the Whitefish River which comes down from the north through Whitefish Lake

and the town of Whitefish, parallel with the Still water River occupying the same ancient valley, finally joining the Still-water River near Kalispell.

A long, long time after the upheavel of older, harder Algonkian rocks through the sedimentary rocks of the ocean floor to form the main crest of the Continental Divide came the times of the Cordilleran ice sheet and of the ancient Tertiary Lakes. The Great Cordilleran ice sheet which pushed down across Canada overlaid the Flathead Valley, the Rocky Mountain trench and the tributary valleys to a depth of several thousand feet. It is thought to have been of a depth of more than 3,000 feet at Kalispell. It extended down through where Flathead Lake is now but did not reach so far south as Missoula. The southern end of the main ice sheet probably stopped soon after plowing out what is now the great moraine that forms the dam now holding in Flathead Lake in the vicinity of Polson, although extensions of this ice sheet probably reached quite a little ways farther in the Clarks Fork River Valley southwest of Polson. The great glaciers of this ice sheet about completed the work of forming and finishing off the valleys resulting from the upheavals of the Rocky Mountains. The valleys of the Stillwater River and the north fork of the Flathead River, the principal ancient tributaries of the Flathead Valley, are wide and rounded, first plowed and scraped out and then partly filled with glacial debris. A great Tertiary Lake was formed in the north fork of the Flathead River, a chain of smaller Tertiary lakes formed in the valley of the Stillwater River. Another Tertiary lake was in the south fork of the Flathead. It is unlikely that the upper Flathead Valley was the location of one great Tertiary lake, or if there was one here it must have been for only a short time because of the tilt of the valley floor towards the south and because of the lack of shore-markings on the mountain sides adjoining it. Rather, there probably was a grouping of a number of lakes and as these receded there must have been hundreds of little lakes and ponds separated from each other by glacial till of gravel, boulders, and boulder clays. It is the small, nearly level stream bottoms and deltas, and the beds of these numberless extinct lakes and ponds that today compose the agricultural soils of the little stump land farms of this region. They are still separated by the tills of boulders and gravel, and boulder clays forming the ridges, hog backs, and little foothills that cut off these farms somewhat from each other on the outskirts of the main valley.

Through the ages of geological time the large Tertiary lakes disappeared. Long after the disappearance of the Cordilleran ice sheet mountain glaciers formed an important part in soil formation, continuing the work of plowing out the valleys and moving the glacial debris about. Rocks were ground upon rocks; rock flour silt, clays, fine sands, coarse sands and fine gravels and other sedi-

B.

Two upper pictures are in Stillwater River Valley. These show the level floors of old lake beds. Only the bottom lands shown in the picture are suitable for agriculture.

The lower picture is in the Coram Belton Valley. This is the little level delta of an extinct glacial river. Poor perspective makes cultivated area appear too large. There are only about eight acres of cultivated land in this picture including a small plot back of the buildings. A few acres in the lower right corner, not yet cleared, are also suitable for agriculture.

The mountains in the left background are in Glacier Park.

ments were pushed out of the beds of the large Tertiary lakes and carried into the small stream bottoms and the bottoms of the myriads of little receding lakes and ponds.



Soil As Affected by Forest Cover

In the forests and stump lands encircling the upper Flathead Valley and covering its tributaries, the predominating forest cover is



Douglas Fir and Western Larch known to the lumbermen as fir and larch. On the better soils where moisture conditions are favorable there mixes with these predominating species considerable spruce and true fir (Abies), and along the foot of the Kalispell



range from Michels Lake and Lake Blaine down through Echo Lake and Swan Lake considerable western cedar, white pine and hemlock are found. On the lighter soils there is considerable western yellow pine mixed with the fir and larch or often forming pure stands. The predominating cover is

always fir and larch and forms 90% of all forest cover. Lodgepole pine appears frequently as a temporary type, coming in prolifically to reforest old burns with nearly pure stands of poles.

Douglas fir and western larch are two of the oldest tree species now found in the northern forest. Both of them are known as fire resistant species which probably largely accounts for their persistence from prehistoric ages. In the order of their fastidiousness for site quality, the trees of the forest cover would be named as follows:

Fir (true fir, *Abies lasiocarpa* and *A. grandis*)
White pine (*Pinus monticola*)
Western cedar (*Thuja plicata*)
Spruce (*Picea Engelmanni*)
Hemlock (*Tsuga occidentalis*)
Western larch (*Larix occidentalis*, "tamarack")
Douglas fir (*pseudo tsuga taxifolia*, "Oregon fir")
Yellow pine (*Pinus ponderosa*)

The first named species are also much more tolerant to cold, and yellow pine is the most warmth demanding. The form of growth of these trees is always a prime indicator of forest soil quality, (height growth is the best indicator) but not always of agricultural soil quality, although it is an axiom that the better the forest soil quality the greater its potential possibilities for transition to agricultural soil. The herbage, grasses, shrubs, bushes and other underbrush forming the ground cover are good indicators of potential agricultural soil quality; not only as regards distribution of species but also their habit and form of growth.

Forest growth utilizes the soil in a much different way than do agricultural crop plants or the grasses of the prairie and natural meadows. Coniferous forests make use of and modify the soil quite differently than do deciduous trees. Trees send their roots down to great depths into the subsoil. These roots are permanently there for hundreds of years growing and extending themselves and throwing off excretions of almost entirely ash content. From the branches and branchlets extremely small rootlets extend in all directions and from these incalculable numbers of almost microscopic root hairs. The little root hairs wrap themselves around the finest soil granules wherever there is enough moisture to form a film. These little root hairs usually bear mycorrhiza or other extremely small organisms living in symbiotic relationship with the tree organism. To a great extent the roots of trees depend much less upon the presence in the soil of bacteria and other plant and animal organisms than are necessary for herbaceous plants. These little root hairs seem to contain or prepare dilute acids that assist in breaking down minute rock particles.

If a little spruce tree plant, perhaps a foot in height, is placed upon a polished limestone or marble slab and its roots packed about

with wet mud so that it can grow there for a space of a few weeks, it will be found that when the plant is lifted off and the slab is washed, the little root hairs have etched a fine tracing upon the polished surface.

In proportion to the great extent of root growth, trees make their growth frugally and slowly. Nearly all of the growth is made in the spring months. A thin layer of cambium is laid on, both on the outside of the wood stem and the inside of the bark. After a few years of growth the heart wood is abandoned and becomes dead lignified cellulose, the greatest part of its cell contents having gone over into the living sap wood. In a larch tree after a few inches of stem diameter is obtained, the sap wood is extremely thin and the tree is composed almost entirely of dead lignin of the heart wood. Thus the active vegetative tissue of the tree is not nearly so extensive as would appear. The tree has recovered to use over and over again for its own use most of the nutritive contents that were in the heart wood rather than excreting them to the surface of the ground.

Coniferous trees are sparing and parsimonious in returning to the soil what was taken from it. Their scant foliage persists on the tree for many years before the needles are shed. A peculiar exception to this are the American larches, or tamaracks of which there are three species, and which shed their frail, tiny needles each fall. Only one other North American species, the Bald Cypress of the south, has this deciduous habit. In many of the pictures of this report the tall, extremely slender trees that appear to be dead are tamarack trees photographed in April before the new foliage had appeared.

There is usually an extreme scarcity of duff or partially decomposed organic matter on the floor of the forests of the fir larch type. In moderately open stands on gravelly soils the top soil may be entirely uncovered and exposed. When the lumberman removes the larger part of the stem of the tree in the form of saw logs, he removes most of the growth that has been made in the fir larch forest for hundreds of years.

In one hundred years on average good forest soil in this locality a larch tree will have a diameter of from ten to twelve inches. Most of the forests in this locality were around three hundred years old when they were cut over leaving stumps with average diameters of from twenty to thirty inches although many trees were much larger.

It may interest the reader to note that fir and larch are worth from 50¢ to \$1 per thousand feet B.M., log scale, on the stump and the average stand cuts from 15,000 to 20,000 feet. That is to say in some 300 years the forest has produced a value in saw logs of around \$15 per acre, or about 5¢ per year per acre.

The contents of the saw logs that are removed are largely mineral ash and cellulose. The mineral ash contents are mostly calcium, potash, and silica but usually contain considerable of the other mineral elements most important to agricultural crops with traces of such minerals as iron, manganese, boron, and perhaps traces of such rarer minerals as zinc and copper. Thus the effect of logging upon the forest soil is to remove from it in one swoop a principal part of the crop of hundreds of years with no return to the soil. This has a grave and important effect when the agricultural values of stump land soils are considered.

Most agricultural crop plants refuse to grow in the forest, (always meaning this fir and larch forest) or even in openings in the forest or on newly cut-over uncleared stump lands even when carefully planted there. There are, of course, many exceptions, for instance strawberries and raspberries. Where there is moisture small white clover and timothy will grow in small forest openings and in the abandoned narrow logging trails and roads. June grass, blue grass, and alfalfa will not grow in the forest or on newly cut over stump lands. Even cheat grass will not grow there although it will come in on stump lands after they have been long cut over if the underbrush has been removed. In the same manner many of the small plants of the forest will not grow in cultivated soils.

On the better forest soils in northern Flathead County are found a variety of broad leaf, deciduous shrubs, bushes and small tree growth which are of considerable help in laying down organic matter in the top soil. Such large bushes or small dwarf trees as birches, mountain maple, alder and chokecherry are indicators of good soil quality, particularly of good moisture conditions, although they may indicate cold soils. Such bushes as service berry, juniper, huckleberry and some of the willows, while beneficial to the soil do not indicate such good site quality. There are some twenty species, probably more, of willows growing in this forest and on these stump lands. Many of them are, peculiarly enough, indicators of poor site quality and often of lack of moisture during the growing season.

The older, more experienced stump land farmers, when they have stump-ed and cleared a few acres and completed the first breaking of the soil, cover the ground with a layer of stable and barnyard manure, and plow it under.

C.

All pictures on this page are taken in vicinity of Whitefish.

The land is rather stony and rocky in all three clearings and is of questionable agricultural value.



They used to be able to haul a great deal of this from the logging camps where they were able to sell much of their farm produce. This use of manure on the new ground has not only the effect of making almost immediately available a supply of nitrogen, but it is even more important in introducing into the soil bacteria and other active organisms that help to modify the raw soil and make plant solutions available for farm crops.



Kinds of Soil



Working single-handed and under pressure for time as the writer was, no attempt was made to map the soils of the region. As has been explained, they are extremely patchy, scattered and irregular in occurrence, little areas and large areas of fair agricultural soil being separated from each other by till of gravels, boulders, boulder clays

and sometimes sands. The fairly good agricultural soils are found only on level, or nearly level lands; the small bottom lands of streams that have usually long since disappeared, and deltas where they flowed into

larger streams or into lakes and ponds, the beds of these ancient lakes, and finally the flood plains of the main Flathead Valley. Exceptions to this are the long, gradual slopes of impure clay beds, which are good soils where the slope is not too severe. Another exception would be low-lying level benches of poor soil which might be mistaken for ancient stream beds but which are the ground moraines that were planed across or scraped across by the more recent mountain glaciers which have gone from the area but are still to be found only a relatively few miles away in Glacier Park.

Fair agricultural soils are found only in the nearly level alluvium deposits, in old stream beds, lakes and flood plains as just described. The writer had neither the equipment nor time for making chemical analyses of these soils and would have had little ability in this direction. We may be sure that calcium, potash and silica are abundantly present.

The habit, form, and other characteristics of wild herbaceous plant growth on the stump lands might indicate a lack of phosphorous and certainly a lack of nitrogen producing factors. Except where considerable decaying wood is present with warmth and moisture in the top soil, the soils are a little on the alkaline side with pH values extending a little over seven. For stump land soils this is a favorable condition and these limestone soils will be quickly and easily modified, under cultivation, to a desirable acid-alkaline balance.

The writer made some twenty different rough physical soil analyses with only crude equipment on the better soils and the results never varied greatly. The mother soil is clayey, largely of impure limestone origin and never pure clay except where concentrated in the middle part of some of the most poorly drained lake beds. Those clayey soils are usually granular and desirably crumbly. In some, impalpably fine rock flour silt and very fine clay particles predominate. Even in these there is always some fine sand. The most common clayey soils are nearly half fine and coarse sand and often of the correct term "loam" since it might imply, as popularly used by the farmer, the presence of organic matter and conditions of agriculture, contain a great deal of gravel and range from this into boulder clays, always containing much gravel.

A typical physical analysis of the average good clayey soil runs about as follows:

- 20% Impalpably fine rock flour
- 20% Extremely fine clay particles containing no grit
- 20% Fine clay particles and barely visible sand particles

- 20% Extremely fine sand, the grains of which can however be easily separated with the naked eye
- 20% Coarser sand made up about half and half of fairly fine granules easily visible to the naked eye, and of coarser granules and extremely fine gravel.

The fifth portion (the coarser sands) is of interest as revealing the source of the soil elements and the process of their breaking down.

Under a strong hand lens the least coarse granules are composed largely of crystals and granular fragments from sandstones, quartzites and related rocks. Fragments of impure limestone and calcareous argillites form most of the larger sand granules. These are easily visible, and under a strong hand lens are pitted and irregular in shape or something the shape and color of much wrinkled dried peas.

Occurring with these are a small number of extremely fine gravel pebbles. These are generally somewhat the size and much the shape that would be had if a number six bird shot were placed on an anvil and lightly tapped with a hammer until its thickness was about half reduced and it assumed a flattened roughly oval shape. These tiny pebbles are mostly from the red, green and grey argillites. In breaking down a lump of the average impure clay about as big as a good sized walnut, there would be enough of these minute pebbles to cover a penny.

We noted another peculiarity of most of these soils that has some significance in the process of transition from forest soil to agricultural soil. In this portion of the coarser soil particles there was nearly always present a trace of small lignin fiber undergoing a lignitic process or well on the way to form particles of lignite coal. These are dark brown to nearly black in color. They are visible to the naked eye as little specks of black pepper would be if sprinkled from a pepper shaker onto a white paper, and it is barely discernible that they are rectangular in shape. Under a microscope they reveal themselves as little bundles of wood fiber cells. In this fifth and coarser soil portion these little organic particles lie among the little irregular granules of impure limestone, several times larger than the organic particles. It seemed to the writer that this shows well the comparatively sterile, lifeless nature of raw stump land soils. They are about the newest soils to be found in the United States and are greatly lacking in living organisms.

When stump land soils are first cleared the stump land settlers say that crops cannot be grown for two or three years because of

D .

Abandoned stump land farms.

The upper picture is in the lower Stillwater Valley where it opens out into the main Flathead Valley. This cabin has been occupied by a grant family who were merely stranded here and not farming.

The two lower pictures are at the extreme north edge of the valley about one mile south of Half Moon. In all three cases, the land is much too gravelly and rocky for agriculture. The short, bushy, limby form of growth of the small yellow pines in the two upper pictures is an indication of poor soil quality.

In all of these pictures, especially in the middle picture, lime encrusted hard argillite rocks can be seen. These rocks have to be broken with a hammer and are red and green when freshly fractured. The lime has oxidized to the surface giving the rocks the appearance of having been dipped in thin whitewash. Land such as this is not suitable for agriculture. The soil is sufficiently fertile, but will not retain enough moisture during the growing season.



turpentine in the soil. This is perhaps as good a misnomer as any for the complex changes that are going on. Under timber cover of the kind described there is little decomposing forest debris on the floor and the humus is always thin or almost entirely lacking, sometimes being little more than a grayish, organic

stain. There is scarcity of the minute plant and animal organisms needed to prepare soil solutions to be available to the use of agricultural crop plants.



Wherever much decaying wood is present with warmth and moisture, an acid condition occurs at the surface, notwithstanding the alkaline nature of these soils. This condition does not disappear until the top soil is disturbed and exposed to the air and sun. Climatic factors in this region slow down this transition process. For decomposition of crude wood matter in the soil and the establishment of organic cultures in the soil that are needed for agricultural use, warmth and moisture are necessary.



Forest Soil and Climatic Effects

The climate in this region is cold. The growing season is extremely short, soil temperatures over 40 F. are had only from about May 1 to sometime in November. The average frost free period of Whitefish is only about 100 days and in the poorly drained lake and pond beds, frosts may occur any month in the year. There is usually a period of sharp drouth of two or three weeks or a month's duration occurring variously in late April or more often any time throughout May. Again, a severe drouth period is usually experienced from late August through September. This is usually a season of severe forest fires in this region. Thus, the period is extremely short when warmth and moisture conditions are favorable to processes of fermentation and decomposition, and the usually porous nature of the soil is also an unfavorable condition for those processes. This is compensated for, a little, by the clear skies and long hours of sunshine in this latitude in June and July. These are the two big growing months, helped in most years by June rains.

Lack of Irrigation

In a general way the alluviums found in ancient creek beds, deltas, the beds of ancient lakes and ponds, the plains of the large valley, and sometimes on the long gradual slopes of clay beds are fairly good agricultural soils. Where the better soils of the lower Flathead Valley produce without irrigation from 20 to 25 bushel of wheat, and where the average common valley soil in the central part of the extreme upper Flathead Valley produces around 16 bushel of wheat, these stump lands without irrigation produce from 10 to 14 bushels depending principally upon whether the soils are largely of the finer soil particles or whether they are the coarser more gravelly clays. Agriculture should never be attempted on the gravel soils, where a great many of the stump landers are located.

Almost none of these stump lands can be irrigated. The upper Flathead River below the confluence of the north fork and the south fork with the middle fork, enters the upper Flathead Valley through Bad Rock Canyon near Columbia Falls as a rapid, mountain river with a rather large volume of water (average about 3,000 second-feet). The stream bed is, however, cut down deep into the glacial drift deposited in the mouth of the canyon and out into the valley. It would be entirely too costly to go far enough up river so as to divert water from the river and carry it along the side of the canyon to bring it out onto the valley lands.

Between Columbia Falls and Whitefish, three small mountain streams come into the valley from the north out of the Whitefish Mountain,

known as Cedar Creek, Trumble Creek and Haskill Creek. The first two of these sink and disappear soon after entering the valley. Haskill Creek cuts so deep below the valley floor soon after it enters the valley that it is not available for irrigation except by pumping. Whitefish River and Stillwater River, which enter the valley at the northwest corner parallel with each other and only a few miles apart have cut channels deep into the alluvium. Their sluggish and very tortuous flow is not available for irrigation except by pumping. On a great many of the little stump land farms various small pumping equipment has been devised and little truck gardens and small strawberry fields are being irrigated in this manner as will be described later in the report. Further south on the west side of the valley is the Ashley Lake Irrigation Project with extremely high annual irrigation charges. The lands that are irrigated by this project are not stump lands. Thus, nearly all agriculture on the stump lands must be either without irrigation or with irrigation by pumping on relatively small areas with extremely high costs.

THE PEOPLE

Migrants

Using the combined opinion, judgment, and information of the county school superintendent, the county commissioners, WPA, welfare and relief officials, in conference with the county welfare administration and the county agent of the extension service, to whom the writer is most indebted for this information, he secured the following figures which are nearly accurate regarding the migration of drouth refugee farm families into Flathead County.

Since 1932 some 1300 drouth refugee families have entered the county. The forerunner of this migration actually began about 1930 as a consequence of the depression, poor market prices and high costs of production and especially the reversion from the status of farm owners to farm tenants of many farmers in the northern Great Plains area. The height of the migration was reached in 1936 and 1937 as a very direct consequence of drouth conditions and grasshopper infestations. Migration into the area has decreased but continues. While practically all of these families have a farm background, not all of them were truly farm families where they came from. About one out of four of the families now settled on stump lands were small tradesmen, craftsmen, skilled laborers and common laborers who failed along with the farmer upon whose prosperity they were dependent. They were the townspeople of the little country villages of the northern

Great Plains whose means of livelihood were directly dependent upon the farmers with whom they worked and did business.

We secured direct information from about 200 stump land farm families, so far as possible by home visits, personal interviews with groups in school houses and town halls, calls by groups to the supervisor's office in Kalispell and sometimes by letter from those whom we could not meet personally.

Since all of them could not be asked the same questions and since some of them evaded or preferred not to answer certain questions, and since certain questions could not tactfully be put to certain of the stump landers under the circumstances, the basis of our information varies from as few as forty answers to certain questions to as many as 200 answers to certain other questions.

Origin and Occupations

The most common occupations of those, whose last previous occupation in the drouth area was not straight farming, were in about the following order: small tradesmen; mechanics; carpenters and other skilled workers; service station operators and truck drivers; clerical and professional workers. Most of these have some farm experience and their lives have always been closely identified with the lives of farmers. In almost all cases these people had not only lost but because of drouth, grasshoppers, crickets and economic conditions, but they had in most cases lost title to their homes and farms and were as they expressed it "out in the road".

So far as origin in the drouth area is concerned, the largest group were nearly 25% from the northeastern counties of Montana with an added 15% coming from other eastern and middle eastern counties of the state. Some 20% come mostly from North Dakota and from South Dakota, Wyoming, Nebraska, Kansas and Colorado in the order named. Not all the stump land settlers with whom we are concerned are drouth refugees. A considerable part or about 40% of all the stump land settlers have been in Western Montana for more than ten years, many of them from fifteen to twenty years or longer. To a considerable extent they are failures in farming and other enterprises, who have lost their farms or homes.

Old Settler Stump Land Farmers

A considerable group of the stump land settlers (about 15%) have been stump land settlers by preference for many years or often all.

E.

The upper two pictures are the little old stump land farms of pioneer woodsmen, a type of people who in normal times ask no odds of anyone. These settlers are now occasionally employed on WPA and other public works; sometimes as foremen in CCC camps. When these public works are a thing of the past, these pioneers will return to their part time occupations in the forests.

The lower picture is the small stump land ranch of a part time town-worker.

In all three ranches only the level bottom lands are suitable for agriculture.

of their lives. These are a class of people by themselves. They are independent, self reliant and capable of self maintenance under back woods conditions. They live in the back woods frontier because they like to. They clear up little patches of stump land, often in connection with little natural mountain meadows, have a small garden, and sometimes a little patch of hay. They may keep a cow or two and a pig. The women folks do most of what farm work gets done. They like to farm largely with fish pole and gun or double bitted axe and cross cut saw.



Until the recent days of the CCC, WPA, and other relief work projects (admirable as the writer believes them to be) and the immigration of drouth refugees, these stump landers could always find such occasional employment as they needed or wanted. Many of them had employment as experienced woodsmen in forest protection and



improvement work in the National forests and in Glacier Park. This work is now largely taken over by the CCC and the ERA and WPA. Along the railroad spurs and switch tracks there were always to be hauled and to be loaded, railroad ties, poles, posts, piling, mining stulls, logs and other forest pro-

ducts. Hunting and fishing parties could be guided. A little prospecting could be done more for fun than for gain. A little employment could be had in the prospect holes and small, usually unproductive mines of the region.

Huckleberries could be gathered and sold, fuel wood could be cut, sold or traded. Saw logs could be cut by contract in the logging operations. Occasional work could be had in the logging camps and saw mills, although these frontiersmen dislike



for any sustained period of time even the rough, free and easy discipline and regular hours of employment of the lumber camps.

This little class of time backwoods stump landers do not want steady employment nor do they want to farm except to satisfy their own needs. They are living as they always have lived and they always will want to live, and are quite unconcerned. The short working periods of the WPA and other forms of relief employment are to their liking. Relief employment of various sorts has pretty well replaced their former sorts of occasional employment.

Locations of Migrants by Classes

Of the 1300 drouth refugee families who have come into the county since 1932, some 450 families are stranded on stump lands in Northern Flathead County around the outer timber edges of the upper Flathead Valley. We use the word "stranded" because these people's holdings are so small or the soil is so poor, or both, that they can never expect to make a living from farming their present homesteads and it does not appear that there would ever be enough industrial employment so that they could expect to support themselves by using their little stump land farms as subsistence homesteads.

Another 100 drouth refugee families are stranded in empty farm buildings on farms but not farming, although the farm land itself is often being farmed by other farmers.

Some 400 refugee families are stranded and dependent upon "relief" in such Flathead County towns as Kalispell, Whitefish, Somers, Columbia Falls and Big Fork; and in such little settlements as Coram, Belton, Olney, Half Moon, Kila and Marian.

Some 125 refugee families are located on older, better stump land farms and sometimes on Valley farms where there is a possibility that they can work out their own salvation with some help in the way of grants and rehabilitation loans.

In addition to the above, not more than 25 refugee families are so located on farms in the Flathead Valley that they are now entirely self-maintaining, although some of them may find a need for rehabilitation loans for which they probably would be eligible.

Another less easily determined group, probably numbering some 200 refugee families, are shifting, squatting, camping, living in trailer houses, frequently moving and not yet located.

Location of All Stump Land Families by Classes

Not counting the long established good ranches in the park-like country in the main upper valley where there are often patches,

groves and corners of stump land and forest occurring on the prairie; there are about 1100 stump land families in Flathead County.

Of these, as indicated in previous paragraphs, some 450 to 500 are rather poorly located drouth emigres. There are about 150 families of the old backwoods type of stump land settlers who would not live in any other way. About 150 families are townspeople somewhat regularly employed, settled on small tracts close to towns, developing their small acreages as subsistence homesteads and often building very nice cottages and bungalows

Some 100 families are settlers on fair soil having holdings of 80 acres or more, with clearings of some 20 to 40 acres, subsisting their families quite largely from the farm but always dependent upon occasional outside employment or other sources of income.

Some 100, or a little more, families "follow the woods". They shack up or some build pretty good cabins in the neighborhood of lumbering operations or other wood using industries. They usually move where the operations move, but frequently are stranded on their little tracts when operations "cut-out".

In all of these classes are a more than normal proportion of old people content to live out their remaining years as stump landers.

Maladjustment of Families to the Land

Most of the refugee families, by force of circumstances, located very hastily and their lands are ill-adapted to the size of the family or their ability as farmers.

Many farm families who were the best farmers in northeastern Montana are now located on the smallest and poorest holdings. On the other hand, we frequently find refugee families whose last occupations were in country-town business or mechanic's trade; who, having come into the county with more means, have been able to establish themselves on the better class of stump land farms.

Most of the farm families arrived by automobile and truck with a minimum of household goods and farming equipment with almost no funds. Some of them were reduced to all sorts of expedients to secure enough gas from place to place along the road to move with. Many of them, on the other hand, arrived with a caravan of three or more motor vehicles, a freight car of household goods, livestock and equipment, and with a comfortable little stake of money.

F.

All three of these pictures show hopelessly stranded stump landers who were drouth refugees. In all cases the buildings are inexpertly constructed, but decently comfortable.

In case of a serious forest fire these families would be in great danger.



These stump lands of western Montana and the stump lands of the Pacific Northwest including Idaho are the last frontier for the western farmer. They are the last cheap lands. The average selling price of these stump lands on a long time contract is \$5.00 per acre, of which \$1.00 per acre is paid down when possible and the buyer keeps up the taxes.

Small tracts and those on or near the paved highways cost more. Clear title to an average 20 acre stump land tract can be had for \$100. Many of the smaller tracts are bought by subdivision from larger stump land farms.

The large stump land owning company located in Kalispell is now arranging the sale of a large area of stump lands on the Stillwater River to the Forest Service for in the neighborhood of 65¢ per acre. These lands are located up above the sedimentary bottoms, on the benches and slopes, and would be entirely unsuitable for farming.



The three principal stump land owners, or managers, or directors of stump land companies are Henry A. Good of Kalispell, Harley Wells of Whitefish, and Clark Hendrickson, Superintendent and Manager of the Stoltz Lumber Company. The principal stump land owner organizations are the Stillwater Land Company, the Whitefish Land Company, the Stoltz Lumber Company (sometimes incorrectly referred to as the Wolf Lumber Company because of its location).

the Somers Lumber Company; and sometimes the A.C.M. Company and the N. P. Railway Company.

The writer was unable to find any case in which it might be said that the large stump land owners were exploiting the refugees in selling stump lands to them. These families come in usually with empty hands and under no inducements; no one asked them to come. For the payment of a few dollars down they contract to buy a few acres of stump land and establish a home for themselves and have once again the status of "home owners". A great many of these newly acquired stump land farms at the time are only three to five acres in area. About 20% of them are less than eleven acres and about 30% are more than ten acres but less than forty-one acres. Less than 20% of all the stump land farms are more than 100 acres in area.

In the writer's opinion and judgment, the smallest stump land unit that would entirely support the average stump land family would have to contain at least 80 acres of cleared stump land of the better quality, 40 acres of cleared pasture and meadow and at least 40 acres of brush land pasture. The area of brush pasture might well be more.

A larger class of these stump land settlers do not intend to subsist themselves entirely by farming but rather to develop little industries, businesses and other small enterprises, or to support themselves at such labor as they can find from time to time. Many of them are more or less regularly employed townspeople who have adopted this means to own their own homes and partially subsist themselves.

More than seventy percent of all stump land families receive at times some form of public aid, usually WPA work.

Nearly 45% of them have clear title to their land and these are usually the smallest holdings. More than 50% are buying their land on contract, or rarely have secured a deed and given back a mortgage. These last are usually the larger holdings. Some are undisturbed squatters.

I know of more than one case where the refugee family was given a contract on a small piece of stump land with no payment down whatever but with the obligation to make payments they could and to keep up the taxes. We know of one case in an adjoining county where one of the largest stump land owning corporations in the state accepted one section of a spike tooth drag as security for first payment on a fairly large tract of stump land.

and then loaned the harrow back to the farmer to use on his land.

The writer does not find that the stump land owners have solicited these sales of stump land tracts. In fact, as large tax payers they would prefer not to have these people come in to become finally a public liability. On the other hand they have not discouraged them.

No harm can be done to stump lands. Nature has already suffered here all that it can at the hands of man. This does not apply, of course, to considerable areas of stump land bearing good stands of reproduction of considerable size. A great deal of stump land of doubtful quality is now being cleared of heavy growths of young timber of six, eight and ten inches in diameter and making a particularly strong, thrifty growth. On the typical stump land tract, however, all that man can do there now will not damage anything.

The average refugee family comes to the stump land owning organization usually with a little money in hand for a first down-payment. He becomes a home owner and a tax payer. For as little as \$100 he can build himself a decent, comfortable cabin. The old timers in this region build good houses of logs, or logs and frame, making as good homes as anyone could wish. The newcomers construct little, poorly built frame shacks and cottages of poor lumber. Sometimes their little houses are built of poles. A common sort of new cabin with these new people is one built of slabs from the little portable mills around in the forest, that are sawing out railroad ties and squared timbers. A pretty good little two or three room slab cabin can be built for a cash outlay of from \$100 to \$200 and in a great many cases the new settler has been permitted to work out a considerable part of the cost of his building materials in the logging camps and numerous small mills of this locality.

Industries, Sources of Employment and Income

The largest saw mill is located at Half Moon directly north of Kalispell on the Great Northern Railroad and operated by the Stoltz Lumber Company. There are two fairly large lumber mills in Kalispell and several other small wood using industries. Just outside the area is the very large saw mill and wood preservation plant of the Somers Lumber Company, a subsidiary of the Great Northern Railroad, at the upper end of Flathead Lake. Scattered around in the forest on all sides of the valley and up and down the mainland of the railroad east of Columbia Falls and west of Whitefish and up on the Marian Branch south west of the valley are some thirty or forty little saw mills, tie mills, shingle mills and the like.

Homeless as they were, most of the new settlers located very hurriedly, glad of a chance to end their wanderings. A pitifully

G.

These four pictures are taken along the main highway in the Coram Belton neighborhood.

The top picture and the third from the top picture show comfortable cabins cheaply constructed of slabs. The cabin in the top picture is that of a saw mill worker. The settlers in the second picture and in the bottom picture are occasionally employed on road maintenance work.

The bottom picture shows a cabin of very poor fram construction in which all sorts of odds and ends of material have been used. I talked with this settler for some time. He has about three acres of bottom land that he proposes to clear and put into garden truck and strawberries. He is, at present, employed on road maintenance (not relief) work.

The third from the top picture shows the home of a small standard loan borrower. He pumps water from the little pond shown at the extreme left of the picture, and is preparing the land in the front right foreground for strawberries. He will have five or six acres under cultivation.

The balance of the land is unfit for agriculture.



quite favorable for farming (except often for climatic conditions) if the land were cleared.



much of their belongings as they could move and migrate to the frontier.



ties they find surprisingly many little means of employment. They

large proportion of them settled on stump land soils so gravelly and rocky, or so rough of surface, that there is not the remotest possibility that they can ever farm. Many of them, on the other hand, are located on tracts of excellent soil quality and where conditions would be

These are not an inferior class of people. Rather they are better than the average. They had enough intelligence to realize their hopeless predicament as grain farmers in the drouth regions and enough courage and stamina to pack up as much of their belongings as they could move and migrate to the frontier. Many of them have become partly self-sustaining in various little industries, businesses and other small enterprises. They are not the class of people who prefer to live on any form of public aid. As a public liability, the writer believes they are better off here than where they came from. They are little home owners and taxpayers. Their relief costs less and they live better than if they had stayed in the drouth areas. They impress me as being on the whole an intelligent, would-be self reliant, frugal and industrious people.

As stump land settlers in fairly close communi-

have worked out for themselves with no guidance many interesting forms of neighborly cooperation and ways of community development. Their occasional sources of employment are in the logging camps, a work for which most of them are not well adapted, time to time employment in the larger saw mills and the many little portable wood-using mills in the timber surrounding the valley. Some of them are beginning to develop little arts and crafts enterprises in manufacturing little curios and novelties for the tourist trade, and furniture, cabinet-work, and wooden utensils that can be sold in the stores. The native woods, except juniper and birch, are not suitable for most arts and crafts uses.

In some parts of the valley, particularly in the bigfork area and around Flathead Lake and several of the other lakes that abound in this region are summer homes which they assist in building, or where they can be employed in the summer season. A great many of them find employment with the forest Service or during the short season in Glacier Park. Some of them make boats or weave rugs. Many of them have built along the main highways, angling for the tourist trade with little stores, beer parlors service stations, repair shops, tiny dance halls and cabins for tourists. Some are employed on government, state and county (not relief) highway repair and maintenance work. Some members of the family often work in stores, restaurants and other business employment in town.

Most interesting is the way in which they have developed trade, employment and business among themselves. It may be said that in a community of subsistence homesteads such as this for every three families on WPA employment, one more family can exist through the business, trade barter and little employments that grow in the communities. If this seems an exaggeration, it will be found not to be when one studies it for a while.

If we disregard the fact that corporations and other industries are heavy federal taxpayers, the wages of three WPA families is "outside money" supplementing whatever other little cash income can be had, and whatever subsistence is derived from the farm. In these little crudely cooperative communities the money passes around and around and a very little goes a long ways. It goes in and out of every industry and little town business and more people have to be employed to handle it.

In much the same way when a settler "works out" his land contract payments or his building materials, or his little store bill, in some lumber mill; in time a carload of lumber or railroad ties is

H.

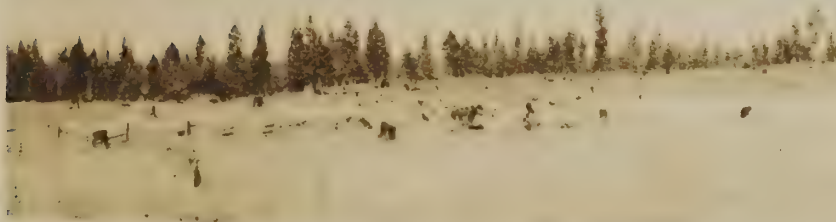
These pictures show land clearing operations

In all cases the work is being done with teams and block and tackle after the stumps have been shot with powder.

The soil in all of these areas is fairly good as is shown by the character and form of the young timber and the heavy undergrowth.



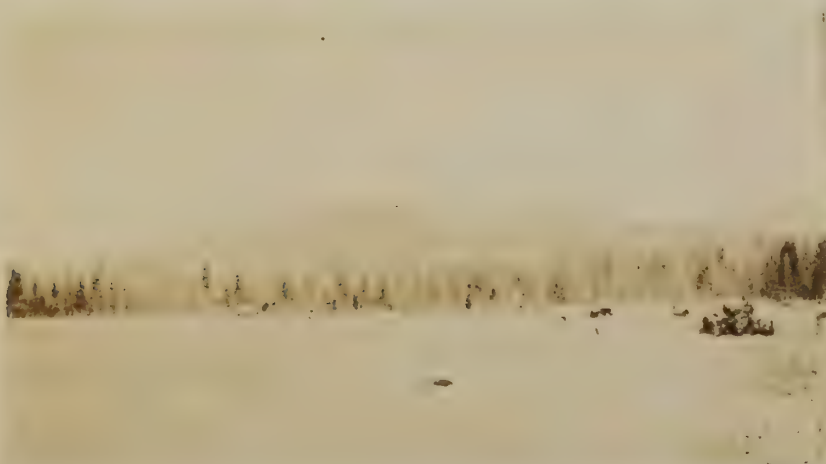
shipped out, a check for several hundred dollars comes back to the operator. Again it is outside money. It is as if the settler had worked for cash and paid his bills with cash, and again the money goes round and round in the community.



They exchange work a great deal. One man is skilled at well-drilling, another repairs automobiles and farm machinery, another may trade carpenter work. In stumping usually three or four of them work together. Quite often a little money changes hands between them.



I found more than one instance where a little group had banded together to buy between them a stump puller



costing \$200 or \$300. Some of them who have developed a little farm land trade farm products for other farm products. A stump lander with a few stands of bees may trade honey for other needs. I was greatly impressed everywhere by the spirit of neighborly cooperativeness and what might be done for these people with more help and guidance along these lines.

The story of the typical drouth refugee family among the many with whom I talked runs about like this:

The Smith family came from one of the northeastern Montana counties and their dry land farm of 960 acres was near the North Dakota line. They produced almost entirely wheat with summer fallowing. They only kept enough livestock for their own use and farmed with tractors. Fifteen years ago this family owned their ranch and some \$15000 in securities most of which was bank stock in a North Dakota country bank. By 1935 they had lost this property except for the Montana ranch which was heavily mortgaged. They owed \$9,000 in notes secured mostly by land mortgage, but also by mortgage on almost all of their chattels and livestock. Smith considers that the bank that held his notes dealt very fairly with them. He relinquished the farm to them in satisfaction for the land mortgage. They allowed him to liquidate his notes secured by chattel mortgage at 40¢ on the dollar. He held a sale and was able to withhold quite a little farm machinery, a team of horses, three milch cows, a small tractor, all of his household goods and an assortment of tools and miscellaneous supplies and equipment.

He came into Flathead County with a sedan and a truck pulling a two wheel trailer and a four wheel trailer. He and two other families from eastern Montana combined to use a freight car carrying livestock, two tractors (one of which was his) and other farm machinery. He bought forty acres on contract, paying half down. This had been partly improved some ten or twelve years ago by a family who long ago moved off. He had twenty acres of cleared plow land and twenty acres of stump land the surface of most of which is too rough and steep to plow and which has partly grown up to lodge pole, fir and larch thicket of small poles. Back of his place along the lower mountain slope is abundant free pastures. He has repaired the old log house that was on the place to make a barn for his cows. He has built a new three room and leanto cabin of logs, slabs and frame, rather inexpertly constructed. He finds that the soil on the upper part is rather rocky and he is not well satisfied with the place. He is undecided whether to sell out and seek a larger place or stay on where he is since he and his wife will be alone very soon and the place would probably be good enough for them without the children

He has a daughter 18 years old, a son 21 years old and another daughter, a young widow, 26 years old with a small child three years old. The son has been able to find occasional employment almost ever since they came to the county four years ago. Most of this was driving truck for some of the small tie mills in the locality. The oldest daughter has been employed in Kalispell as a waitress during the past winter. The younger daughter has attended high school part of the time and has also had occasional employment. Her last job was as an attendant and office girl in a doctor's office. The younger daughter expects to work in Glacier Park this summer and the older daughter plans to be married in June. The son has helped them a great deal on the farm in their building work and in doing a little clearing. He has been taking correspondence instruction in diesel engines, air conditioning and automobile mechanics and expects to secure permanent employment in some shop or garage, with the idea of sometime having such a business for himself.

The father has not tried to find any employment for himself since the little ranch takes all of his time. Both he and his son have had considerable intermittent WPA employment.

He now has four cows, a good flock of chickens and is buying a brood sow this spring. He is able to raise feed enough for all of these on the little farm. He also raises a big garden with some surplus garden truck to sell and he has been able to peddle some of this around the tie mills in his locality. He plans to put in an acre of potatoes for cash crop this spring and has planted an acre of strawberries. He has an old automobile engine and will rig up a home made pumping plant to irrigate the strawberries and some of his garden.

He is very glad that he left the drouth area and came to Flathead County. He told me that for seven years before he moved he farmed every year at a loss. Some years he didn't even get his seed back. He thinks that the soil on the ranch in eastern Montana has been greatly exhausted by summer fallow farming with straight grain crops. He believes that if he had continued in eastern Montana he could expect to put twice as much expense into the ground each year as he could earn back from it. He believes that where he is now on the east side of the valley up against the foot of the Kalispell mountains, he can at least keep out of debt. He said "I have been here for almost four years now. We have made a home for ourselves. I have made two small payments since I made the down payment of half the price of the land. We have lived well. We have a cow and a heifer more than we brought here and we don't owe a nickel. My keenest regret is that I have not been able to continue

sending the youngest girl to high school and help the boy take an engineering course at the State College. I wouldn't go back to eastern Montana. If the boy wanted to stay with me on the farm, I would sell this little place and contract for a larger farm in the valley".

Methods and Costs of Land Clearing

It is an easy thing to say carelessly, or sometimes with considerable truth, that as compared with the present price of good farms in western Montana stump lands are not worth the cost of clearing them. It is sometimes truthfully said that it would cost as much as \$100 per acre to clear and prepare for cultivation newly cut over stump lands. If one were to hire the labor, buy the powder and employ tractor, bull dozers and skilled operators to clear up and prepare for cultivation in one large operation a considerable area of newly cut over stump land, where heavy stands of timber were removed, the cost might run into \$100 per acre.

If the Farm Security Administration should attempt such a large extensive project to be completed in a short time, the cost would be entirely out of proportion to the value of the lands when they were ready for farm use. Yet it is a fact that most of the stump land farms in northwestern Montana have been cleared and prepared for cultivation with very little cash outlay. They were cleared rather by continually pecking away at them, a few acres each year at the most favorable season of the year. They were cleared with a use of the minimum amount of powder when the clayey soil was wet to afford best conditions for tamping and only enough powder was used to loosen the stump and shake the larger part of the dirt loose or to split the larger stumps into several prongs. Stump pullers of several designs were often used with little or no expense for powder.

When a stump is pulled without first loosening with powder, a large amount of dirt clings to the stump and a very large hole is left. A large stump that can be pulled from the ground in from one-half hour to an hour with a stump puller will require several hours of tedious hand work to chip the dirt off the stump and return it to the hole whence it came.

A great deal of stumping was done in the old days by chunking up around the stumps and burning, and then chunking up and burning again, and again, year after year, at the same time breaking up and loosening the soil and removing all the brush and forest cover so that in two or three years such soil conditions were established that rough farming could be carried on among the stumps.

I.

Abandoned stump land farms.

The lower picture shows the bottom of an extinct glacial pond. After this pond had disappeared ages ago and tree growth had partly covered it, the bottom became "plugged" with sediment washed in from the surrounding slopes and the pond has again partly filled with water, killing the recent forest growth by shutting off air from its roots.

It is now a well known duck shooting marsh. No clearing has been done in the lower picture except through heavy pasturing.

Some of these lands have now been cut over for from twenty-five to forty years and the stumps are sufficiently rotted and loosened so that they can be pulled away with block and tackle or with a capstan windlass device, with horse power. Often long cut over but not cleared stump lands have been heavily pastured for so many years that an open grass land condition has established itself among the stumps.



Where stumps are shot in the spring when the ground is wet so that tamping in the clayey soils is extremely efficient,



the stumps can be loosened and sufficiently broken with an average of about 150# of powder per acre for average long cut-over stump lands. The remainder of the work can then be done with some horse-applied power device.

The stump landers pay too much for their powder. When bought in small quan-

ties from local dealers the powder often costs as much as \$18 to \$20 per 100# or in large quantities from \$12 to \$15 per 100#. Stump landers were able to buy powder this spring through the Farmers Grange from their factory in Oregon for around \$9.50 laid down. We understand that government projects



are securing their powder for around \$6.50 laid down in the locality and it might be found possible to assist the farmers under some cooperative arrangement to buy their powder through these channels.

Wherever money is available to pay for stumping, the use of a bull dozer of the larger type is probably the least costly way, since it can perform the entire operation of pushing out and pulling out the stumps, filling the holes, leveling off the ground and clearing it of brush and roots on from three to five acres per day depending on the condition of the stumps. Only enough powder is used to loosen the largest stumps. A 80-h.p. bull dozer of the caterpillar tractor type can be contracted for at \$6 per hour, including its experienced operator and a rigging crew who handle the cables or chokers. Such a bull dozer and crew are now operating in the Whitefish area with performance as just stated.

Many of these farmers only want to purchase enough powder to clear from three to ten acres each year. They are usually able among themselves to furnish the labor and horses. It might be that some arrangement could be worked out for small grants to these little stump landers to assist them in stumping a few acres each spring and thus help them to become more self-maintaining.

We sounded out a great many of the better situated stump landers as regards the possibility that they might desire to borrow money providing security could be offered and their land or their contracts assigned as further security. More than one-half of them do not want to borrow. They have been in trouble that way before and have learned a bitter lesson. Almost none of them want to mortgage or assign contracts on their little land holdings. Such little home land as they now have they want to hold without fear of someday losing it. The large stump land owners who are selling the land do not usually press hard for yearly payments. In a great many cases, the stump lander is given an opportunity each year to work out his payments entirely or in part by working for the companies.

Some plan might be worked out for the companies to assign their side of the contract as security for loans for land improvement. I believe some of them would listen favorably to such a suggestion.

Social Factors and Trends

The thought strikes one sometimes that the obvious way to dispose of this problem is to move the stump landers off of these lands where they are so poorly located. It would be a difficult thing to do. They are home owners of a sort. Most of them are surprisingly happy, content and even complacent. This is by no means

the lethargy of despair. They love the region, its greenness, its beautiful mountains, its fish and game and all the other hospitalities of nature that it has to offer. They will object strongly to moving.

Do not think that the writer is optimistic. More than one-half of them are so located that they will in time realize the impossibility of their situation. They are, however, resourceful, enterprising and very frugal (though it may be a newly acquired trait) and they will want to work out their own destiny.

There is still considerable timber to be cut in the region. As the large mills are cut out, many little mills will come in to produce mostly minor forest products. More roads and other public utilities will be constructed. Considerable business and trade develops itself in the community.

Typical Old Time Stump Land Farmer

The typical longer established stump land farmer of the most successful class has at least three forties or usually a quarter section. He has been on the land fifteen years or more and is on clayey soil of about the class that is analyzed in the first part of this report. He has twenty-five or thirty acres cleared, but rarely more than forty acres cleared. He engages in general farming, the nucleus of which is a small herd of dairy cows and some hogs. He usually grows a little more wheat than he uses on the farm. Sometimes on the warmer soils a small cash crop is a few acres of potatoes. He will often have a patch, sometimes an acre or more, of Everbearing strawberries. He raises a big garden and sells some garden truck. He trades for a better used car, or rarely a new car every few years and often has both a passenger car of sorts and an old truck. He has about four head of horses. He cuts and sells a little fuel wood. To provide for his family living costs he has always had to find considerable employment off the farm for cash. He is still under that necessity, that is, his farm has never been sufficient for the entire maintenance for his family.

He suffered a severe set back a few years ago when the logging camps generally changed over from horse logging to tractor logging. A 60 or 80 "cat" and its experienced driver do the work of ten or twelve swampers, skidding teamsters, deckers, loaders, landing men, "bull cooks" and the like. The "cat" eats no oats or hay and the lumber jacks who were replaced no longer stow away three lusty meals a day of pork and beans, garden truck, vegetables, meat roasts and potatoes and gravy, pies, puddings and cake. Many companies have

J.

The upper picture is of an abandoned stump land ranch on the edge of the valley just where the open lands merge into the timber lands. The soil is very rocky and unsuitable for profitable agriculture. It is farmed occasionally by neighboring farmers.

The middle picture is the Van Wert ranch, near Whitefish. This is a Holland family who moved up here from California with considerable means for the benefit of Mr. Van Wert's health. He has since died. A great deal of money has been expended on this place and it is being prepared for raising strawberries. The soil is good, being the very gentle slopes of deep beds of clayey soil.

The lower picture is of the Henry Good ranch. This is the best stump land ranch in the valley, and is taken just where the valley merges into the stump lands. As an indicator of soil quality, contrast the form of growth of the young yellow pine timber in the left foreground along the lane with that of the yellow pine in the picture of abandoned farms just out of Half Moon, shown in a preceding plate, P.13. These are the gentle slopes of deep beds of clayey soil. This ranch has never been farmed at much profit. Mr. Good is a wealthy logging contractor owning much stump land in his own name as well as being agent for and part owner of the Stillwater Land Company. He is one of the principal sellers of stump lands.

entirely discontinued their logging camps and transport their small woods crews back and forth from the "mill town".

In the last several years he has occasionally secured relief employment but almost never any more direct form of relief. Such farm

families, of which there are probably less than 100 in the county, have a good chance of finally becoming entirely self maintaining from the products and proceeds of their farms. While a few of them resent the coming in of the drouth refugees, most of them are surprisingly tolerant, neighborly and co-operatively helpful.



Crop Production and Climatic Influences, Markets

Notwithstanding a fair degree of soil fertility, these stump land soils are not highly productive.

While good farm soils in the open valley for a few miles north, northeast and northwest of Kalispell are producing fifteen to eighteen bushel of wheat per acre, the stump land

farms around the sides of the valley will produce ten to fourteen bushel per acre. Alfalfa hay will produce from one to one and one-half tons and oats around twenty bushels. A little better yields are had near Whitefish and in the Lake Blaine vicinity.



In connection with the soil modification processes, we have mentioned precipitation during the short growing season. Two weather reporting stations have been maintained for many years in the valley, one at Kalispell and one at Columbia Falls. Because of their location in regard to mountain ranges and prevailing air currents, the growing season is possibly a little shorter and the precipitation a little more scant in the vicinity of Whitefish than in the vicinity of Columbia Falls.

The weather bureau reports for the years from 1895 to 1936 an average of 116 days of frost-free period and this period will be somewhat shorter on most of the stump lands under consideration because they are located generally on the outer and higher edges of the valley and particularly because almost the only soils suitable for cultivation to be found in the stump land areas are the alluviums of bottom lands with poor air drainage. Where these bottom lands are located a little ways back into the foot hills, frosts may be experienced in every month of the year.

The average total yearly precipitation at Kalispell for the period 1897 to 1936 was 14.7 inches, for the period 1929 to 1938 has been only 13.6 inches. Total annual precipitation during the growing season for the period 1897 to 1936 was six inches and for the period 1929 to 1938 has been only 5.1 inches. At Columbia Falls the total annual average precipitation for the last ten years has been 17 inches, and during the growing season a little less than eight inches.

On such of the stump land farms as have been for a considerable time under cultivation, the principal crops have been hay, wheat, oats, and barley, although most of the farming has been general farming combining also dairying, hogs; potatoes and corn (only on the warmer soils); truck gardening, small fruits, poultry and many other small diversifications. There is always much more diversification on these stump land farms than on the larger farms in the open interior valley.

We believe that wheat and other small grains should never be grown on these stump land farms except as limited strictly to feeding on the farm. Potatoes are a good cash crop only in the warmest locations and on the best sandy clay soils. They can be successfully produced in a limited area of a few square miles of stump lands east and south east of Whitefish and again along the foot of the Kalispell range in the Michels Lake, Deer Park, Lake Blaine vicinities. These last designated stump lands in the little trench that runs along the extreme west edge of the valley just under the foot of the abrupt steep slope of the Kalispell range are some of the best stump land soils in the valley

We feel sure that the maintenance of small herds of good dairy stock with a few hogs are the backbone of stump land farming in this valley. The local market for dairy products is now pretty well filled since dairying is a main farm industry in the valley. Too much development along this line would require the shipping of dairy products to outside markets at lower prices. If some agency of the government were to go quite far in preparing these stump lands for a dairying industry and in developing such an industry, considerable complaint against government aided overdevelopment might arise from farmers who have long been established in the industry on the better soils of the interior valley.

Truck gardening is a well developed industry on the better stump land soils just east of Whitefish. Market conditions for garden truck are a little complex. Garden truck of best quality and great variety is shipped in to all of the towns in the valley by trucks throughout the twelve months of the year. This garden truck is brought in from several hundred miles away, from the south and west, is of fine quality, skillfully prepared for the market.

Most store keepers find it disadvantageous to interrupt this well organized, sustained line of trade for the few months of the short local growing season. A surplus of locally grown garden truck goes begging for a market while the stores display garden produce trucked in from a long distance away. Truck gardening is, however, well organized as an industry in the vicinity of Whitefish and garden truck from these garden (once stump lands) is sold to some extent not only in the local stores but also to a great extent in Glacier Park where the short open park season nearly coincides with the local growing season. A considerable amount of garden truck from the Whitefish area also finds its way east across the mountains to the oil fields of Cutbank, Shelby and that vicinity and to the small industrial towns along the Great Northern branch lines as far as Great Falls and Helena, Montana, and along the main line even as far as Minot, North Dakota.

Although more garden truck is now produced in the northern part of Flathead County than can be absorbed locally during the short growing season, it is believed that other markets can be found for it not too far away and that a considerable part of the local market can be won over. It is our opinion that the industry of truck gardening can be profitably developed to a considerable extent. It must necessarily form an important part of the program of all stump land farmers; most importantly to provide the families on subsistence homesteads with all of their own needs, and secondly to provide one of several small sources of cash income. To accomplish this, marketing would have to be organized and truck lines for transportation especially arranged.

Certain fruits should be grown, first of all for home use and secondly for small sources of cash income. A few of the most hardy varieties of apples can be grown of quality suitable only for home use. Hardy sour cherries and some of the hardier plums can be grown for home use and a little for the local market for home preserving. Such hardier bush fruits as raspberries, currants, and gooseberries do well and tame varieties have escaped from cultivation and are found growing wild.

The most important fruit produced would be Everbearing strawberries and this industry has been peculiarly developed throughout nearly all of the stump land areas in question. These Everbearing strawberries are of extremely fine quality as regards size and flavor, although a little soft and perishable for long distance shipping. They come onto the market unfortunately after the first of July continuing until the first snow falls when the buying public have largely finished home preserving and are no longer "strawberry minded". They find a considerable market in the local stores and particularly in Glacier Park. They are shipped to some extent across the mountains to the west along with garden truck already mentioned. In the Bigfork-Echo Lake Community and in the vicinity of Whitefish some of these strawberry patches include three or four acres with a few fields of from ten to fifteen acres. If over-developed this enterprise will undoubtedly become very hazardous, particularly for lack of market and perhaps more importantly by the coming in of infestation and infections of various sorts. Considerable trouble is already being experienced along this line by some of the larger growers.

Except on a very little of the best sub-irrigated land the strawberries have to be irrigated. This is usually accomplished by planting on broad low ridges between wide, shallow trenches, or much better by overhead sprinkling systems. In either case the water is always furnished by pumping. If these strawberry patches are limited to comparatively small areas on the stump land farms separated from each other by low gravel ridges, hog backs, and foothills, a quite favorable condition can be maintained for combating diseases and pests.

There is as yet in this upper Flathead Valley a quite strong market for stock cattle, hogs and sheep. None of these are sufficiently produced to entirely take care of the local market. Stock cattle enterprises should be limited and restricted to very small herds on the most outlying stump land ranches in the foothills bordering the forest reserve where fairly good grazing of limited duration may be had not only at very small cost on the National Forest but also at almost no cost on the thousands of acres of bench land and foothill undeveloped stump lands.

A great many of the little stump land homesteaders are keeping a few stands of bees. There is an abundance of wild flowering plants which bees use from April until fall on the undeveloped stump lands and broken forest areas, and a great deal of alfalfa is produced.

Very few sheep are as yet being kept by the stump landers. Wherever sufficient land is owned, a small band of sheep might well be kept and the relatively long feeding season would be somewhat compensated by the abundance of fairly good, cheap brush land pasture. Lambs bring a little premium in the local market and wool prices are those prevalent at this time in Montana, just under 20¢.

Some of the stump landers are developing little nursery enterprises and even little greenhouses. This might well be further developed. Perennial flowering plant roots are being produced in some little quantity for local sale or nearby markets, as well as strawberry plants and roots and shoots of small fruits.

A specialized small local semi-agricultural industry is the gathering for market of wild huckleberries. These huckleberries of the northern slopes of the Rockies are in a class by themselves. They are unlike any other blueberries, whortle berries, buckberries or even other huckleberries of the northwest. The berries are very juicy with a tart spicy flavor and a strong spicy perfume. They sell readily in local markets and are shipped short distances into Eastern Montana. They were canned commercially last year in a very small canning factory in Kalispell. The Farmers Union is proposing to take over this small cannery to operate as a cooperative, with the principal products strawberries, huckleberries and asparagus. Many stump landers find employment in late summer gathering huckleberries.

The Forest Service at present plants millions of three and four year old coniferous transplants. There are in the close vicinity hundreds of thousands of acres, or literally millions of acres of burned over denuded forest lands to be reforested. One such area extends from a little east of Whitefish more than thirty miles to the eastward and into Glacier Park.

These little forest tree transplants are easily grown after a little instruction and the work is particularly well adapted to women and children. It might be that in the near future arrangements could be worked out with the Forest Service and with the Park Service for the production of millions of these small trees in little stump land farm nurseries.

We found a few settlers keeping small flocks of goats. We doubt if they have as yet proved profitable although something might be developed along this line. A few settlers keep chinchilla rabbits and find them profitable. One small standard loan borrower makes the larger part of his small repayments each year from the profits returned by his rabbits.

Trivial as all these various little small source of incomes may appear, it is the necessary way for the stump lander on a small farm. On the whole, market conditions are most unfavorable. The valley has the most adverse freight rates of any productive part of Montana. Wheat prices, grade for grade are always a few cents lower than any other Montana production points. When the farmer near Minneapolis gets 70¢ for his wheat, the Flathead farmer gets 35¢ for the same grade. When a Wisconsin farmer pays \$200 - \$250 for a new binder, the Flathead Valley farmer pays \$300 for the same machine.

Industrial Centers

Flathead County is to quite an extent an industrial region and should be able to continue in this way for a good many years to come. Although the most accessible timber and that of best quality has been pretty well cut over, there is still a great deal of timber land in the county, both privately owned, and in the National Forests, where a sustained yield will be maintained. Mr. Hendrickson of the Lumber Company at Half Moon tells me that his mill will be cut out in five years so far as their own timber is concerned, but that they may continue for some time longer with National Forest timber.

There are four principal industrial towns, the populations of which can only be estimated because of the heavy immigration of people since the last census. Kalispell, the county seat, has a population of close to 10,000 people. It is known as the most modern and best improved town in the state of its size. There are two fairly large lumber mills in Kalispell or on its outskirts and five smaller mills and wood using plants. It is also the center of one of the most productive agricultural valleys in the state and in the summer is a tourist center of great importance in western Montana,

Whitefish has a population of about 2500. It is a ~~division~~ point on the Great Northern Railroad, and the car shops for the Rocky Mountain division are located here. There are two small wood using plants, one of which is a rather inconsequential shingle mill. It is something of a center for the loading of other forest products direct from the forest. Within a few miles west and northwest of town are several small tie mills.

Somers is on the head of Flathead Lake south of Kalispell and there are located here the saw mill, planing mill and railroad timber

preservation plant of the Somers Lumber Company, a subsidiary of the Great Northern Railroad. This saw mill town of some 500 people is reached by a branch line from the Great Northern Railroad at Columbia Falls through Kalispell. A branch railroad line starts from here north and west to the little towns of Kila and Marian. This branch line is used almost entirely for bringing saw logs and other forest products to the mill at Somers. This mill also draws timber from several points around Flathead Lake and should be a permanent industry for a very long time to come.

The little town of Columbia Falls has about 250 people and is not as large as it was years ago. It is located near where the Flathead River comes into the valley through Bad Rock Canyon. Because of this location on the way to Glacier Park, it is quite a tourist center during the season. There is a small saw mill and planing mill on the edge of town and also a small mill and shop for the manufacture of "ready built" cottages. These are constructed of small timbers sawed from large logs to appear like small logs, squared 6 by 7 inches with one round face and are fabricated with corner joints, a patented device, roof and floor sections, and doors and windows so that the whole affair is ready to set up. This new industry seems to prosper and will probably expand. There is also a small sash and door factory which operates only intermittently.

Half Moon has a population of perhaps 100 people. It is entirely a company town. Besides the large saw mill and planing mill, there is a company store and postoffice.

Public Services and Utilities

Migration of drouth refugees and others into stump land areas has created with county officials and taxpayers a serious problem of public services and utilities. The taxpayers of the county are reluctant to build roads into the back areas or to construct rural schoolhouses that may have to be abandoned in a few years when these people have failed and move out.

Rural electrification projects have been developed and are being extended in the eastern and southeastern parts of the county. Some of the little stump landers have actually been connected to these projects and are, of course, now being solicited by salesmen to purchase all sorts of electrical equipment which they cannot afford. Only two new rural schoolhouses in stump land areas have been built. Several have been enlarged. None have been abandoned. New schoolhouses have been built and old schoolhouses enlarged in all of the principal towns. When I talked with Mrs.

Peterson, the county superintendent of schools, she informed me that in the year of 1934 six hundred refugee families entered the county and, according to her records, this was the peak year of increase in number of school families although other records that I secured would indicate that 1936 was the peak year. She considered that my figure of 1300 immigrant families in eight years, which I reached by a concensus of all available competent judgments and opinions, is conservative.

Instead of building more rural schoolhouses in stump land areas the county has increased its facilities in the towns and the county superintendent informs me that the cost of transportation of school children has increased from \$7000 in 1934-35 to \$34,000 for the school year just closed.

Population Trends

There is a shifting about of families within the county and migration both in and out of the county. A few drouth refugee families are going back into the Great Plains areas and a few are emigrating into Idaho, Oregon and Washington.

Many of the refugee families, now fairly well established in the county, are sending back for friends, neighbors and relatives. On the whole, we are inclined to believe that the migration into the county is about twice as much as the migration out of the county and results perhaps in a net gain of about 100 more refugee families each year.

Attitude of Land Selling Agencies

It is the feeling of the writer that the principal land selling agencies named in this report are not to be seriously criticized for the sale of stump lands to these people. They (the agencies) are all timber operating companies or the subsidiaries of lumber companies. These stump lands are a by product of their operations. They are endeavoring to sell all but the better agricultural soils back to the government for forestry purposes at very low prices. The tax burden on these lands is, of course, very heavy and they are naturally anxious to get out from under. I find that their prices have been moderate and they have been extremely lenient in enforcing the terms of their purchase contracts.

In a conference yesterday with Mr. Wells and Mr. Good, (Mr. Hendrickson was out of the state) already named in this report, they expressed their willingness to assign to the Farm Security Administration their contracts with the stump land settlers as security for any loans that might be made to them for purposes of land clearing and other land improvements, with this proviso: that each case

would be handled on its individual merits and that they would be furnished with a copy of the farm plan so that they would know what part of the loan was actually to be expended for improvements and what provisions were contained in the farm land for the maintenance of regular annual land payments to them.

This seems fair enough to me and much preferable to taking from the settler as assignment of his side of the contract or an assignment of his deed and mortgage since we would not want the embarrassment of foreclosure on these people's homes.

County Supervisor John Wheeler and District Supervisor Frederic Crouse participated in this conference. We all agreed that if in fact any loans could be made it would be an advantage to us that the land sellers would pass on the merits of each case before assigning their contracts since they would then be assuming a proper and desirable responsibility themselves in refusing approval of loans of doubtful merit.

While Mr. Hendrickson of the Stoltz Lumber Company could not be present at the conference, we believe that he would fall in line with the other land agencies in assigning contracts as security for land improvements. His situation is a little different from the others since he is only the manager for his corporation while the others are principal stock holders or part owners and in some cases, the entire owners of the lands that are being sold. The Stoltz Lumber Company land contracts are also much less in arrears since they sell stump lands largely to their own employees or are able to offer occasional employment to settlers to work out their small annual payments.

It was agreed among us all in the conference that there were matters in regard to this that would have to be worked out between their attorneys and ours and they expressed a willingness to work out such a written agreement.

Farm Plans for Small Farms

It should be of interest to show here what might be expected in the way of gross income from an 80 acre farm with forty acres cleared and under cultivation and we present the following tabulation:

12 a. grain		feed
20 a. alfalfa	30 T.	"
1 a. mangels or other feed roots		"
2 a. hog pasture, peas, rape, etc.		"

5 dairy cows	(15 T. hay)	gross	\$200
50 sheep	(15 T. hay)	"	250
Sow and pigs		"	100
2 a. truck garden		"	100
1 a. strawberries		"	100
1 a. potatoes		"	50
300 chicks, winter 100 laying pullets and 30 2 yr. hens			150
Miscellaneous, few ducks, turkeys, geese, stands of bees, goats, rabbits, cord wood, etc., etc.			<u>100</u>

Total gross income 40 acres cultivated \$1050

Nearly all of these people secure considerable outside employment and there are very few stump land farms in the valley that are sufficient to maintain a family without outside employment. The larger part of this outside employment in recent years, has, of course, been WPA employment and other relief work which certainly could not be shown in a farm plan as part of the family income towards retiring a loan.

On a Small Subsistence Tract

On a ten acre subsistence tract there could be two acres of truck garden, an acre of strawberries and other small fruits, one acre of potatoes or some other cash crop and most of the remaining acreage would be used for hay and feed root crops, but no grain. A cow and a pig and a small flock of poultry would be kept and perhaps some other little small incidentals such as bees, rabbits, a small nursery for perennial flowering plants, shrubs and small fruits and all the other various little angles that these people branch out on. Besides furnishing the family with a large part of its subsistence and providing a home for them with free wood and water such a little ten acre tract might produce \$200 or \$300 of gross income on good soil with good management and not too far from main highways.

PROBLEM SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Of some thirteen hundred refugee families moved into the area we are concerned with four hundred fifty to five hundred families on stump land tracts that are quite inadequate because of small area, poor soil or the combination of both, and with about one hundred twenty-five families on larger, better stump land farms for which some form of loan might be worked out if our present loan regulations could be somewhat modified.

There are in all some eleven hundred stump land families in the county of which we can eliminate from our problem some one hundred fifty old experienced frontiersmen and woodsmen who occupy small stump land farms and live as they please; some one hundred ~~one hundred~~ fifty lumberjacks, lumber men and other woods worker families who follow the woods; some one hundred fifty subsistence homestead stump landers who are townspeople and fairly regularly employed; and some fifty small stump land farmers, mostly older people, who have other means and are not dependent upon public aid.

Both the various agencies of the Department of Agriculture and the taxpayers of Flathead County may well be concerned regarding the problem presented by the four hundred fifty to five hundred families now located on inadequate lands and for whom no manner of farm plan can be devised upon which to base any sort of rehabilitation loan. Except so far as they are able to develop subsistence production on their stump lands and secure sufficient outside employment these people are a public liability dependent upon public aid and will always remain so unless industrial enterprises or highly specialized forms of agricultural production and marketing should be developed through ways that cannot under any possibility be as yet foreseen.

It seems to the writer that great care needs be taken here to not extend any form of agricultural or land development aid that might tend to more permanently fix inadequately and improperly located stump land families as a liability both to the taxpayers of the county and to the agencies of our Department.

Grants for Powder

On the other hand, most of these people are so situated that they could be greatly helped to help themselves, and the writer's understanding of them and sympathy for them leads him to favor some sort of grants for them for improving small acreages for subsistence purposes only.

Among all the stump land families in the county, we have only about 100 grant cases and about 45 standard loans or half of our loans in the county. All other public aid for these families is now furnished by other agencies, mostly by WPA.

In extending grants for this purpose to these people, we then at once encounter the possibility of affecting their eligibility for WPA employment. The writer would be in favor of securing for them small grants of from, say \$50 to \$100 each spring for the purpose of clearing and cultivating their land and putting in gardens and fruits for strictly subsistence purposes if a defin-

its hard and fast agreement could be reached with the other public relief agencies that are now helping these settlers.

Another solution of the problem would be to assist them in forming community groups or somewhat informal cooperative associations to which grants could be made of carloads of powder. Many of these little settlers state that if they could only get powder furnished to them they would be satisfied with that much help from us.

We suggest that strong competent advisory committees would need to be set up in each community such as Whitefish, Columbia Falls, Belton-Coram, or the Lake Blaine-Echo Lake neighborhood, to supervise the distribution of powder or to approve each grant application of this sort upon its merits. We believe that \$50 or \$100 expended in this manner to each case would decrease need for public aid by much more than this amount each year.

A still better solution which the writer would suggest, but which we doubt could possibly be worked out would be a fairly large community grant to each of the principal communities to be expended as a large competent committee of the principal taxpayers might direct.

Where Loans Might Be Made

In considering now the group of some one hundred fifty or more stump land families on tracts of about 80 acres (60 to 100 acres might be a better figure) of fairly good soil, the writer recommends, in case loan policy regulations could be modified, a form of rural rehabilitation loan for the clearing and placing under cultivation of around forty acres of land. These loans would approximate about \$1000 each and would seldom need to exceed this figure if restricted to this purpose. The loan would be mostly for powder. The loan should provide for horses and stumping equipment such as block and tackle or some of the horse power stump pulling devices, only in case the borrower was able to show that he would at once be able to provide feed either by producing it or by working his team to pay for it. In this connection, and this would apply also to any possible form of grants for land clearing, these people should certainly be provided with a means for securing cheaper powder. If the WPA is able to lay powder down in northern Flathead County for \$6.50 or \$7.00 per hundred, our agency should certainly be able to assist these people in some manner to combine their buying power and secure powder equally cheap.

County Supervisor John Wheeler was recently called before the Whitefish Chamber of Commerce and approached regarding the possibility of securing a cooperative loan for the purchase of an 80-h.p. bull dozer for stumping. It was proposed to him that the loan be made to the Chamber of Commerce as a cooperative group and that they

rent it out to the stump landers at cost, the rent to be paid for with funds advanced to the stump landers either in the form of grants or loans by the Farm Security Administration. Mr. Wheeler, of course, had to inform them that cooperative loans could not be made under present regulations to such organizations.

There are some merits to be found in working out some plan for a cooperative loan to a large group of stump landers for purchasing a bull dozer for land clearing. I am, however, reluctant to recommend such a plan.

It seems to me that these stump landers have more time and empty hands than anything else. Most stump lands in the upper Flathead and other nearby valleys have been cleared by "shooting" the stumps with dynamite to loosen them from the ground and knock off most of the dirt after which they have been laboriously removed with horse power or rarely with small tractors and cable. This requires much less cash outlay and we believe that stump landers had better keep on in this manner except for those who have capital and are beyond need for our aid. We should point out that while a big powerful bull dozer can remove the stumps from six to ten acres of average stump land in one day at a cost of around \$50, plus a powder cost of \$40-\$100, the land is not yet cleared. The dirt remains on the stumps, the holes are not filled, brush and roots in the soil are not removed and the land is not leveled back ready for cultivation.

A bull dozer can perform all of these operations and stack the stumps in addition, but if it performs the entire operation, only two to three acres are cleared each day at a large outlay of cash cost.

If the businessmen of Whitefish desire to join together and purchase a large bull dozer at a cost of around \$7,000, the writer believes that in many cases loans might advantageously be made to stump landers for the use of the bull dozer at cost although each case should be carefully investigated on its merits to prove the bull dozer methods most advantageous.

If loans were made of approximately \$1000 each for land development on say forty acres of each sixty to one hundred acre farm, special modifications of our loan policy would have to be arranged. I believe the repayment period would need to be extended to ten years and that the payments for the first two or three years, or until the land became sufficiently productive, would need to be postponed except where it could be shown that the borrower had the ability to make earlier repayments.

If we enter into any such program, either as regards grants to a large number of small settlers, or a modification of our loan policy for the better stump land farms, we would need to furnish special supervisory personnel.

While I believe that we should keep entirely away from any form of Resettlement Project, yet there might well be placed here, working under the county supervisor, a sort of project manager who would understand all the problems involved and who could encourage and advise and instruct the settlers.

There should be a special sort of Home Management Supervisor, able to work with these peoples as equals, and skillful in teaching them how to do better with what they have to do with. While most of the settlers are living cleanly and decently, she could do much along the lines of looking after sanitation and child welfare. She should be able to teach arts and craft and other handicrafts. A big order to fill! And a poorly equipped person would be worse than none.

A market study should be made by a competent expert and better methods of marketing worked out. He should definitely determine if markets can be opened up for the products of a cooperative cannery, especially in view of the short growing season, the heavy surplus production at a poor marketing season and the very perishable nature of strawberries and huckleberries and some kinds of garden produce.

A cooperative specialist would need to give considerable attention to the area, because of the many little lines of community cooperation that are already started, and to encourage and develop the many kinds of cooperative enterprises to which communities of this sort are peculiarly adapted. For instance, group owned stump pullers, teams and equipment, community laundry - cold storage - canning centers (the writer once installed and supervised a community canning center in Whitefish, under the M.R.R.C.), community owned marketing and shipping centers, marketing trucks, community buying of certain commodities, community blacksmith and repair shops and many others.

In concluding, if all of my other suggestions must be set aside as without merit, or conflicting with policies that must needs be somewhat state wide, regional wide or national wide, I would still strongly recommend that some means be found to assist the settlers on the smaller units with grants of powder (at much lower cost than they are now paying) and to provide the means for the purchase of powder at greatly reduced prices to all of the settlers who, in some manner, can find for themselves the means to purchase it.

I do not believe, however, that any form of public aid should be used for the clearing or other improvement and development of stump lands with very gravelly soils or stony rocky soils, or those of rough or steeply sloping topography, i.e., not more than 25% fine gravel on nearly level lands, and not more than 20% fine gravel on gentle slopes; gradients of over 15% slope should not be cultivated; all of these limitations might well range a little with other soil and environmental factors. The good farm soils are easily distinguished since they are confined entirely to level alluviums, free of coarse gravel and rock; and the gently sloping deep clay-loam beds likewise free of much gravel.

Submitted to the State Director
Farm Security Administration
Bozeman, Montana--June 5, 1939

APPENDIX A - B - C

This survey came about, in part, because of a petition sent to Washington, purportedly signed by 120 stump land farmers, requesting aid in clearing land. It was originally directed at and to the W.P.A.

The principal W.P.A. project in the Whitefish community has been a combined airport and golf links project with emphasis on the golf links which are being constructed along very expensive and ornate lines. The settlers have felt some of the expense might well be put into clearing and putting into production the stump lands in the community, perhaps not understanding that W.P.A. work could not be done on privately owned lands. It was not until this was realized that the petitions (by this time three in all) were directed to us.

Not being able to visit all settlers on their land, I directed a discreetly worded questionnaire to part of them, with addressed, postpaid envelopes for return to us. Copy of questionnaire is attached. Only thirty-one answers were received out of more than 150 sent out. Several were returned to us by postmasters. In several cases two or more signers were from one household. We were informed in the replies, and in personal interviews that signatures to the petition were solicited by representatives of the Chamber of Commerce. Signers lost interest when it was found free land clearing could not be furnished by the W.P.A. The larger part of the signers who did not respond to our questionnaire were finally interviewed. The replies tabulated in Exhibit B of this appendix are not a fair cross section of desire to borrow of us or to mortgage land to us, since those least interested in our program did not reply. Also those most recently come into the community, those having smallest holdings, and those having some means of their own or fairly regular employment showed least interest,

Some who did not respond to questions in questionnaire wrote letters to us. The letters are all included in Exhibit A and seemed of much interest to me as showing attitude. Exhibit B is a tabulation of questionnaire replies and Exhibit C is a typical (actual) copy of questionnaire as returned to us.

x x x

APPENDIX A

LETTERS FROM STUMP LAND SETTLERS

"You can consider my name off of the petition you mentioned. This idea sounded good at the time the petition was circulated but as I have seen a draft of a letter to Senator Wheeler and others I can see that the idea was to get this project started then the party who circulated this position wants to be foreman as he claims to have had years of experience in that line of work while the fact is he is down right lazy that on the relief job he was placed off by himself so there would be no one to talk to in hopes he would do just a little. a laggard among laggards.

Another matter is that as I see it the idea is to get us stump ranchers to go in debt to some one who will be secured by the government. The impression of some seems to be that the logging interests who have stump lands for sale will be the ones who have benefit mostly as they can sell with the promise of arranging for so much clearing. The signers who are chronic WPA clients can't make a living on 40 acres of cleared land and don't want too as they can make a living easier on \$48.40 than by raising crops. Take a look at the stump rancher who have 15 to 30 acres cleared but still are on relief, I'd be glad to show you some examples.

Yours resp

(s) Fred Collins
Columbia Falls"

.....

"When my name was put on the petition, the man running the petition told me it did not oblige me in any way. I did not want to sign but he said I should sign to help the other people. So I signed to help the others who want this to go thru. As for me I don't want any such aid in clearing my land. At the present time I just cleared this spring over 6 acres which will be plowed in a few days. By this fall I aim to have all the land that is now stump land under the plow by myself. And this amount of land will do me for the rest of the years as most of my land is growing a fine stand of lodge pole pine that is worth more than a lot of crops.

I will not answer any of the questions as I do not want to be included in this program.

Sincerely yours

(s) John Oslovski
Whitefish, Montana
Route No. 1"

"I don't know just what could be done for the people of this part of Mont. We have got a heavy clay soil here best adopted to clover and timothy. Early grains make good feeds. But there is too much summer frosts to think of truck gardening. We have a long feeding season here at least 7 more deep snows in the winter to make a success at dairing here you would have to create a better market for butter fats and other by products.

In my estimation it would cost about \$40.00 per acre to clear this land and put it into clovers so that a man could make a living. It takes from 1 to 3 years after this land is cleared to get the turpentine out of the ground and enough humus into the ground to raise a paying crop. So you see what can you do for the people here. It is a sad mistake to let the land co. advertise this land to get settlers to come in here.

I would very much like to meet you Mr. Skeels and talk with you. I live just 7 mile west of Whitefish on hiway 93. I will be working on WPA from 17 to 28 but home evenings.

Your Truly

(s) Kenneth Wise"

.....

"It is my idea that if some plan can be worked out in which it would be possible to loan the farmers money on long term contracts. When money is borrowed to clear land it is put into something that brings no returns for perhaps 3 or 4 years.

Therefore if some plan could be worked out in which the farmer could borrow money and not start making payments until the land which has been cleared becomes productive.

(s) Oral K. Ollike"

.....

"I want to build up my place so I can make an Honest living on it to get the stumps out put up some buildings on this 80 get some cows a few hogs and chickens both kinds laying and meat Breed. I only ask to make a living.

(s) D. J. Manary"

.....

"Any official calling on me will be welcome to any information I can give. I have quite a fund on the subject. my father started clearing the first stump Ranch in this Part of upper Flathead in the year 1904.

(s) H. J. Gallagher"

"In regards to this letter I will right this, Wy cant a man buy a place which is for sale at reasonable price all built house, barn, chicken coops, bruders, hog house, well house with wind mill, and all onder piped for Eregation all fenced with 4 wiers, and cross fences, there is as far as building on the place \$3000.00 worth of buildings. 3/4 of a mile from Kalispell,

Why count a man borrow the money and go right ahead on a place like this, as to clear land have to wait on other 3 to 4 years before you get good enough resoltis to take care of what you have borrowed from the government and make a deasont living. Since as I understand that we will have to borrow the money I can have the place for \$4,500.00 or 5000.00 at the most. This will be at the rate of \$41.50 per A To which I have in mind that by claring this land and build it up, it will go far beon that amount I think that it would be far better If I could do so I would at least try and make myself self suppor Instead of depending on W.P.A. for a living on a small 48.40 If by any chance it could be arranged to do so will you please advise me

Your

(s) Leon E Duval"

/ / / / / / / / / / / / / /

"We would mortgage our two cows but dont like to mortgage our place.

Yours truly

(s) Pearlie Clark"

.....

"If I could have a talk with you I could Better explain how I feel in regards to a Loan from the farm security.

(s) Geo Kohl"

.....

"The OCC camps would be doing more good by clearing farm lands than clearing off the tops of mountains for the sun to shine on. In this part of the country they are running out of work to have the men on the W.P.A. do. When I signed the petition for help to clear my land I understood it was to get help if we could from one of these. But I am willing to cooperate with any Administration that will give reasonable help.

(s) R. W. Anderson"

.....

"I have filled this out to the best of my ability. I could explain this better if I could come to town and see you.

(s) E. J. Minthorn"

"I am not dependent on Government aid but would appreciate anything that could be done to cheapen the cost of land clearing. Cheap powder would be the greatest help to me.

My 22 year old son will return from the Navy next year and will try and place him on this land.

(s) H. M. Arudt"

UNITED STATES DEPARTMENT OF AGRICULTURE
FARM SECURITY ADMINISTRATION

Kalispell, Montana

April 11, 1939

(SAMPLE RETURN)

Lead pencil is best on this paper; write on back of page if you need more space.

Mr. Kenneth Wise
Whitefish, Montana

Dear Mr. Wise:

We are writing to you as one of the signers of a petition asking for some aid from this department in clearing your stumplands. Since this is a far-reaching problem, involving many hundreds of stump land farm families in western Montana, it is necessary to make considerable study of the situation before a decision can be reached. We will visit personally as many settlers as possible in northern Flathead County, but we will not be able to visit all since we are trying to handle this as quickly as possible. To help us in this we wonder if you would be willing to answer the following dressed envelope for your reply which requires no postage.

How many acres in your farm property? 80 Number of acres cleared? 3
How many acres would be good plow land if all cleared? 60 Can any of it be irrigated? yes How many acres would be better for pasture land? 20
What is your best estimate of the number of pounds of powder required for average acre of your stump land? 100 Would you want to use a tractor? yes

What buildings are on your property - log, or frame, etc.?

One house 28x36 slab sealed and paper wood house. Log slab stable.

What kind of farming would you follow if your land were all cleared (dairying, wheat, other grains, corn, potatoes, truck gardening, small fruit, orchard, hogs, stock, cattle, etc. etc.)

This locality is best adapted to hay and feed and dairying and hog raising and poultry and small fruit.

How long have you lived in Flathead County? 5 How long on this place 5
If you came here since 1930, where did you come from? Mccone Co., Montana.
Previous occupation? Farming, wheat cattle raising.

How many in your family and their ages?

Myself	53 yrs.
wife	45 yrs.
daughter	15 yrs.

Have you had WPA employment? yes Farm Security Loan? no Grant? no
Have you clear title to your land? no Or are you buying it on contract and from whom? yes, Henry Good, Kalispell.

Or is it mortgaged, and to whom? no.

What form of help from the Farm Security did you have in mind in your petition, and for what amount of cost?

I do not know what could be done here to help the farmers in this locality, I think a WPA project and let the people stay home and work would be best for some.

Would you want to borrow from the Farm Security Administration to clear your land if it were possible? no And would you be willing to mortgage your chattels or land as security? no And would you be willing to mortgage your chattels or land as security? no (NOTE): such loans could only be made where a sound farm plan could be prepared).

Lead pencil is better than ink in answering the above questions. It should be understood that no promise can be given at this time regarding the kind of help, if any, that can be given. If you can help us by answering all or part of the above questions, we will be very grateful for your kind assistance.

Very truly yours,

Dorr Skeels, District Supervisor
Rural Rehabilitation Division

DS/rp

